

CLAIMS

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1. A microcomposite powder comprising particles of from 1 μm to 300 μm of an electrically conductive product and particles from 0.1 μm to 0.5 μm of fluoropolymer.

2. Powder according to Claim 1, wherein the electrically conductive product is a carbon-based product.

3. Powder according to Claim 1, wherein the electrically conductive product is graphite, carbon black aggregates, carbon fibers, active charcoal or carbon nanotubes.

4. Powder according to Claim 1, in which the fluoropolymer is a PVDF homopolymer or copolymer containing at least 60% by weight of VF2.

5. Powder according to Claim 1, in which the proportions of particles are, by weight, from 10% to 40% of fluoropolymer per 90% to 60% respectively, of electrically conductive product.

6. Powder according to Claim 1, further comprising up to 5 parts by weight of a porogen per 100 parts by weight of the fluoropolymer and the electrically conductive product combined.

7. Powder according to Claim 1, further comprising a product (A), which is a polymer or an oligomer, which can be dissolved with a solvent, which is not a solvent for the fluoropolymer or for the electrically conductive product.

8. Powder according to Claim 7, containing up to 30 parts by weight of (A) per 100 parts by weight of the fluoropolymer and the electrically conductive product combined.

9. Powder according to Claim 7, in which (A) is a polyethylene glycol.

10. Powder according to Claim 7, in which (A) is deposited on graphite by precipitation in the form of filaments, which are capable of linking at least some of the electrically conductive particles.

11. An article, which contains a powder of Claim 1.

5 12. An article according to Claim 11, which is a bipolar plate of fuel cells, or supercapacitor components.

13. A bipolar plate which contains a microcomposite powder according to Claim 1, having a mass per unit volume from 500 to 3000 kg/m³ and a resistivity from 0.01 to 1 Ωcm in volume resistivity and from 0.01 to 0.5 Ω in surface resistivity

10 14. A bipolar plate according to Claim 13, having a flexural modulus from 1,000 to 12,000 Mpa.

15 15. A bipolar plate according to Claim 13, having a flexural breaking stress from 1 to 50 Mpa.

16. A process for preparing the powder of Claim 1, by (co)atomizing one or more aqueous dispersions or emulsions containing the electrically conductive product and the fluoropolymer.